DOCUMENT RESUME

ED 115 401 PS 008 255

AUTHOR Miller, Louise B.
TITLE Situational Determinants of Behavior in Preschool Classrooms.
PUB DATE 16 Jul 75
NOTE 32p.; Paper presented at the Biennial Meeting of the International Society for the Study of Behavioral Development (3rd, Guilford, England, July 16, 1975)

EDRS PRICE MF-$0.76 HC-$1.95 Plus Postage
DESCRIPTORS Academic Achievement; Classroom Arrangement; *Classroom Environment; Classroom Research; Disadvantaged Youth; *Early Childhood Education; Interaction Process Analysis; Preschool Children; *Student Behavior; Student Characteristics; *Student Teacher Relationship; *Teacher Behavior; Teacher Characteristics; Teaching Methods
IDENTIFIERS Project Head Start

ABSTRACT

The effect of classroom environment on Head Start, preschool and primary grade children is examined in this study which organizes the results of a number of selected studies. The research strategies employed in these studies included observations in specified programs (in-class or by video-tape), tightly-controlled classroom experimentation combined with observations and observations under uncontrolled and naturally varying classroom conditions. Research concentrated on the examination of four areas: (1) the relationship between prescribed treatments and classroom behavior; (2) the relationship between teacher behavior and children's classroom behavior; (3) the relationship between teacher behavior and relatively permanent characteristics of children; and (4) the relationship between children's classroom behavior and relatively permanent characteristics of children. Results of the studies of disadvantaged children indicate that didactic small-group instruction, regardless of which mode was used, was associated with restriction of the range of child behaviors. Methodolgoical considerations for future research are explored. (Author/ED)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED115401

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

SITUATIONAL DETERMINANTS OF BEHAVIOR IN PRESCHOOL CLASSROOMS

Louise B. Miller

University of Louisville

The numerous studies of the 1960's which were primarily concerned with the effects of preschool programs on children have been reviewed by Beller (1969). One major conclusion which can be drawn from these studies is that the effective dimensions of preschool programs have not been identified. It is well established, however, that different programs have different effects on children's performance competance, both specific and general. Less clear, but still supported by a number of studies (Beller, 1969; Bissell, 1971; Miller & Dyer, 1975), are the effects of programs on other outcome characteristics such as attitudes. For these reasons the focus of preschool research appears to have shifted toward a closer examination of the classroom situation. The purpose of such research is not to collect normative data on children but rather to illuminate the process by which educational experiences affect their development. This paper is an attempt to organize several years of research in this area at the University of Louisville and place the results into perspective with selected studies elsewhere.

The complexity of classroom ecology necessitates some conceptual scheme. The chart in Figure 1 was designed for convenience in locating various research probes. It may also serve to identify some problems in research strategy. The upper and lower boxes, labeled "Relatively Permanent Characteristics," refer to abilities

PS 008255

Paper presented to the Third Biennial Meeting of the International Society for the Study of Behavioral Development, Guilford, England, July 16, 1975.

traits, etc. brought to the classroom by the participants. Actual classroom events are represented in C and D. Teacher behavior is included in Box C. The arrows serve as reminders that influences among these artificially-constructed classes of events are not unidirectional. Various combinations, such as aptitude-treatment interactions, are too complex for visual representations but can be readily extrapolated. Similarly, various sequences of treatments over time and the effects of duration must be imagined rather than diagramed.

Insert Figure 1 about here

Reality would be better represented by a series of cycles, since children's entering characteristics affect their behavior which in turn affects the teacher's behavior and so forth. In any case, for the developmentalist, it is the "bottom line" which is of greatest interest; that is, the relatively permanent characteristics of children. Since no one has undertaken to map the entire domain represented by this diagram, the paper will follow an order which is convenient for exposition and which is primarily chronological rather than logical.

Most of our work has been conducted with educationally disadvantaged four-year-olds in Head Start. We have also observed teacher behavior in kindergarten through second grade and in middle-class prekindergartens. At various times different research strategies have been used: observations in specified programs (in-class or by video-tape); tightly-controlled classroom experimentation combined with observation; and observations under uncontrolled and naturally-varying classroom conditions. Our inquires so far have been concentrated in four areas:
(a) the relationships between prescribed treatments and classroom behavior;

(b) the relationships between teacher behavior and children's classroom behavior; (c) the relationships between teacher behavior and relatively permanent characteristics of children; and (d) the relationships between children's classroom behavior and relatively permanent characteristics of children.

Effects of Prescribed Treatments on Classroom Behavior

Let us consider first the effects of general treatments or programs on children's classroom behavior. Although the data are more sparse than in the area of performance competence, it has been established that children behave differently in different programs. For example, we found (Miller & Dyer, 1975) that programs were associated with differences in the amount of verbal recitation, the use of educational materials, role-playing, and conversation. Beller, Zimmie, and Aiken (1971) found that certain kinds of programs produce more symbolic play--both simple and complex. Reuter (1973) found that social and peer interaction are a function of program, and Faigin (1958) found dependent-passive behaviors varied from one kibbutz to another. Can the components of the classroom situation which are responsible for these variations in children's behavior be identified? Situational components in the classroom may be dichotomized into ecological factors representing characteristics of the inanimate environment, such as amount and allocation of space, materials and equipment, nature of activities, setting, etc., and those factors which involve the child's interaction with other people.

Numerous studies have shown that children's classroom behavior can be affected by inanimate characteristics of the environment--for example, interpersonal aggression as a function of the amount of space (Jersild & Markey, 1935), on-task behaviors as a function of the characteristics of the activity (Kounin, 1970), complex social interactions as a function of area and materials (Shure, 1963), overt modeling and rehearsing as a function of being alone or with a group while

watching a demonstration (Sproull, 1973). With the teacher's mode of interacting with children and the nature of the lesson controlled, we found (Miller, 1974) the proportion of children's attention which was directed toward the teacher vs. toward peers to be a function of differences in movement patterns combined with materials.

Teachers, however, typically structure such things as room arrangements, grouping patterns, materials available, etc., and in instructional situations the teacher's behavior is the most prominent of the interactional factors affecting child behavior. Various categories of child behavior have been shown to be linked directly or indirectly to teacher behavior; for example, task behavior as a function of teacher praise, criticism, and direction (Fagot, 1973); task behavior, attention to teacher, cooperation with other children, and disruptive behavior as a function of teacher feedback, control and nurturance (Katz, Peters, & Stein, 1968).

Since teacher behavior appears to exercise considerable control over children's behavior, the source of variation in teacher behavior becomes a question of some importance. There is no doubt that the program or treatment being implemented is a major factor in the behavior of teachers, and that greater homogeneity of teacher behavior can result from training teachers in program models (Klein, 1973; Miller & Dyer, 1975; Stanford Research Institute Report on Planned Variation, 1971; Soar & Soar, 1972). Such aspects of teacher behavior as whether they work with small groups or individuals, how often they elicit performance from children and what type, and how reinforcing they are, have been shown to be largely a function of the program style being implemented. However, even in programs or lessons which specify behavior almost word for word, considerable variation in teacher behavior continues to occur (Banta, 1966; Miller & Dyer, 1975; Siegel & Rosenshine, 1973).

There are several possible sources of such residual variations. Teachers

may be affected by ecological factors beyond their control, such as physical condition of the room and size of center (Prescott, Jones, & Kritchevsky, 1967), or teacher variation might be due to the relatively permanent characteristics of teachers. Teacher "personality" has most often been assessed by ratings, questionnaires or tests, and the body of research on the effects of teacher personality on child performance competence (mostly at levels above preschool) has shown little relationship. It may be, as Gordon (1973, p. 212) has suggested, that these factors are more important for very young children. Using observations in classrooms to rate broad dimensions of teacher characteristics such as "controlling" and "approval oriented," Beller (1969) has found significant relationships to problem-solving ability. The difficulty here is that most of the so-called personality "traits" have been shown to be quite sensitive to situational variation (Mischel, 1973). Thus Beller's distinction between "style" and "technique" may be quite important when teacher behavior is assessed by observations. But the decision as to which behaviors represent style and which represent technique is not easy to make. Teach "style" may interact with a particular program, or may vary with differences in the amount and type of training.

In attempting to manipulate teacher behavior experimentally, we have focused on two major dimensions which constitute widely-used teaching techniques: Giving (information or stimulation) vs. Asking (eliciting performance), and Group vs. Individual contact. The Give/Ask dimension has been recognized as an important factor in learning for many years by both psychologists and educators. With respect to preschool, it is often stated that very young children learn best by doing, and most programs emphasize that the teacher should ask for child participation. The Give/Ask dimension may also be defined in terms of stimulus familiarity vs. practice, and this definition underscores the importance of the nature of the task. Vocal

practice might be necessary to facilitate linguistic competence, and stimulus familiarity more important in perceptual development.

The Group/Individual dichotomy is most often conceptualized as small group vs. tutorial instruction. However, a group setting is frequently utilized in combination with interactions taking place primarily with individual children--that is, "taking turns." The typical pattern is Giving to the Group and Asking for performance from Individuals. Depending on the task and the format, group instruction offers several potential advantages: larger amounts of instruction per time and personnel investment, greater opportunity for observational learning and peer instruction, development of responsibility and cooperation, and diffusion of negative emotional effects of error correction and decreased pressure on individuals.

So far our research has involved only small-group instruction, and the term "individual" refers not to tutorial instruction but rather to contacts with individual children within a group situation. In a sense then, we have studied variations in the method of small group instruction. Such restriction makes it easier to exercise control over major ecological factors which are not under study, such as materials.

In one study (Miller, Dugbee, & Dyer, 1975), we were able to train teachers to adjust the majority of their teaching acts to a prescribed mode consisting of these two dimensions and subsequently to shift to a different mode. For individual teachers the effects of interference from one mode to another and the degree of successful implementation were directly traceable to the teacher's previous program participation. With inexperienced teachers it might be possible to obtain even greater control over these and other dimensions of classroom behavior. Such control may be important if these dimensions of teacher behavior produce different behaviors in children.

The Effects of Teacher Behavior on Children's Classroom Behavior

It is undoubtedly the case that many of the variations in performance competence and other permanent characteristics of children which are produced by different classroom situations are mediated primarily through covert behavior (mental processes) and are, therefore, not observable. Imagery and rehearsal are two that come readily to mind. A large portion of research in children's learning appears to consist of attempts to relate the conditions of learning to descriptions of the nature of such covert processes. It appears, however, that the younger the child, the greater the percentage of such covert behavior which becomes overt. Young children, for example, are not much inclined to "fake" attentiveness by staring at a demonstration while their minds are on other things. They are more likely to lay their heads on their arms and sleep, pester their neighbors, or, if possible, wander off to more interesting activities. Thus, observations of young children's behavior in instructional situations may prove quite useful in evaluating the efficiency of various methods for the teaching of specific skills.

A second, however, and perhaps more important reason for observing behavior in instructional situations is the fact that "proto-academic" skills such as questioning strategies, interpretation of task demands, and habits of attending, may be affected indirectly by instructional techniques. Since factors such as materials and activities exert influences on child behavior, these must be controlled in order to assess the effects of teaching method. The body of experimental laboratory work which appears to be relevant--for example, comparisons of observational learning with participatory learning (Rosenbaum, 1967) or imagery vs. manipulation of materials (Wolff & Levin, 1972)--often lacks direct applicability to group situations because the method used was tutorial or, at best, dyadic. For this reason we selected classroom experimentation as a research strategy.

In order to conduct classroom experiments, one of two methods must be chosen: the use of experimenter-teachers who enter the class for a limited time and conduct special lessons, or the use of regular classroom teachers who have previously been trained to implement certain modes. We have used both methods. In either case the strategy is to combine experimental manipulation of teacher behavior with systematic monitoring of the behavior of both teachers and children.

The instrument we have used for observations is a matrix which allows tallying various child behaviors in the context of teacher behavior. It provides for five contexts of teacher behavior to be utilized for each act talled for a child: Giving to the Group, Requesting performance from the Group, Giving to an Individual child, or Requesting performance from an Individual. During Individual instruction a fifth context--"non-targeted"-- is used for all children other than the one being interacted with. These contexts are referred to as "modes" and are abbreviated Give/Group, Ask/Group, Give/Individual, and Non-Targeted.

For children's behavior the categories have varied but primarily we have been interested in such dichotomies as on- and off-task, verbal and non-verbal, direction to teacher, peer, materials, or self, spontaneous vs. responsive behavior and, at times, substance or cognitive level. Since the observation system is a matrix, various sub-categories are also available--for example, "off-task to peer while teacher is informing group." In short, we can simultaneously tally each category of child behavior under each category of teacher behavior.

In a study previously mentioned (Miller, Bugbee, & Dyer, 1975), each teacher taught the same ten-minute lesson twice, in one mode to the first group of children and in a different mode to a different group. The materials used were from the Sigel Sorting Task and the lesson goal was to teach the children that the same objects can be grouped together in at least two different ways. From this

study we obtained observations of 48 children on the same task across six different teachers. Since all of these results were obtained during a single lesson, we conducted a second study (Ebert, 1974) consisting of observations on six children over a period of 15 weeks with a single teacher, but during a variety of tasks which were simply a part of her regular curriculum. These two very different studies had quite similar results indicating that there were very consistent relationships between these modes of teaching and the distribution of children's behavior into the various categories. For example, the children in both studies were on-task 90% or more of the time in all modes except non-targeted (when the teacher was interacting with another child). Non-targeted children were on-task about 85% of the time. The high "on-task" and "to teacher" percentages in Give/Group indicated that it was not necessary for children to be performing actively for their attention to be riveted on the teacher. Most task behavior in Give/Group and Non-targeted modes was non-verbal (predominantly looking and listening), while in the Ask/Group mode about half the task behavior was verbal. Children were not more active when the teacher was interacting with individuals. About half of all behavior tallied in this mode consisted of look-listen.

Although off-task behavior was infrequent in both studies, when the children were off task, the type of behavior was different in different teaching modes. In both studies, "Self" behavior (fidgety, rhythmic, and withdrawal) constituted the largest percentage in the group modes, while in Ask/Individual (when most children were not being targeted), only a little more than half of the off-task behavior was of this type. The rest consisted of activity involving peers or materials.

These results have implications for comparing individual children in classroom settings. Individual differences were examined in the 15-week study and

were found to be eclipsed by the coercion of teaching mode. If one wanted to study rhythmic behavior as a function of didactic vs. free-play situations, for example it would be important to know the context in respect to these modes of teaching.

In general, the Ask/Individual mode of teaching provides a non-targeted context for most children most of the time, and the higher percentage of off-task behavior reveals the results of this situation. About as high a percentage of responsive behavior occurred in the Ask/Group mode as in the Ask/Individual mode, and the advantage, of course, is that a great many more opportunities to respond occur in the group context.

Effects of Child Behavior on Child Performance Competence

Since it is known that small-group didactic instruction can be quite effective in accelerating certain performance skills, our next question was, "Which of the modes in which such teaching can take place is most effective in terms of the learning goal?". A close examination of group instruction raises many questions regarding the extent to which various components of a learning situation can be separated or controlled in the classroom. For example, one cannot, in a group situation, elicit performance from one child without thereby providing opportunities for learning by imitation or observation on the part of other children. For these reasons and because of the higher percentage of on-task behavior in the group modes, we selected those two for comparison. In these two modes, all children are targeted at all times; thus, what is being compared is essentially a demonstration vs. participatory practice. One other difference is that a great deal of feedback takes place in the Ask/Group mode whereas virtually none occurs in Give/Group. Experimenter-teachers were used in this study and 42 children were taught the Sigel Sorting Task. Children were pre- and post-tested and the teachers were monitored as well as the children (Bleidt, 1975). Again, the

goal was for children to learn to identify the categories represented by different ways of grouping the materials--for example, "Why did I put all these together?" "Because they are toys." If practice in labelling the categories was beneficial, the children in Ask/Group should have improved more since the test called for labelling. In the Give/Group mode the teachers identified the objects and called attention to their characteristics in the first ten-minute session; in a second session they demonstrated various groupings. In the Ask/Group mode, these steps were elicited from the children--for example, "What is this?", "What color is it?", "What is it used for?", "What else is used to write with?", and "Why did we put all these together?". The amount of verbal behavior was five times greater in the Ask/Group mode, primarily labelling of categories. Yet the children in the Give/Group mode performed somewhat better on post-testing. Since time was controlled, the teachers in the Give/Group mode were able to complete many more repetitions of the groupings, and this in itself may account for the result. This could be determined by spending more time in the Ask mode in order to hold constant the number of repetitions. (In a classroom, of course, it is not possible to control both variables simultaneously.) Demonstration is certainly more <u>efficient</u>; our hunch is that the Give mode will prove to be more <u>effective</u> also in terms of absolute amount of learning, which in this experiment was not large (a gain of approximately four or five categories). Other tasks, of course, might produce different results.

<u>Effects of Teacher Behavior on Child Performance Competence</u>

The modes discussed so far represent very molar aspects of teaching technique. Even though these can be controlled by training, many other aspects of teaching behavior may affect outcome measures on children--for example, reinforcement patterns and cognitive levels of interactions. At present, research which would directly link teacher behavior to changes in preschool children's performance competence or other characteristics is virtually non-existent. In order

to establish casual relationships, these modes and also many other factors must be accounted for, and teacher behavior must be assessed relative to individual children.

There is some suggestive evidence, however, from a number of studies where both teacher behavior and outcomes measures were taken--for example, the Soars' studies of Follow Through Classrooms (1972), our longitudinal study (Miller & Dyer, 1975), and the work of Beller (1969) which was previously referred to. The combined weight of the evidence suggests strongly that some teaching techniques may have beneficial effects on certain academic skills and adverse effects on other abilities. We found, for example, that children in two of four programs had high scores on divergent thinking, but one of these programs produced high scores in IQ and academic skills while the other did not. These two high programs shared a similar (low) position on only one variable--negative feedback. No direct connection could be established, however, because the programs differed in many other components.

An attempt was made to overcome these problems in a field study conducted during 1974-75. Eight Head Start teachers were trained to use the Peabody Language Development Kit. This program was selected because the various teaching modes of interest appeared to be represented in approximately equal amounts in the lesson plans. The daily lesson guides in the PLDK Manual are quite thorough with word-for-word scripting in many cases. Standardization was further improved through teacher pre-service and in-service training continuing throughout the year. By using aides to tutor absentees and slower pupils it has been possible to maintain virtually identical schedules in the eight classes. In addition, the following major components of the learning environment were standardized: all materials and equipment in the classrooms, room arrangement, themes and field trips, and other structured learning activities such as reading materials and musical

activities. Observations have been made in each classroom once a week in order to classify teacher behavior act-by-act and to identify, in the case of interactions with individuals, the particular child to whom it is directed. Observations were also made of children's behavior with respect to the categories previously mentioned. We hope to be able to determine for a large number of post-test scores the amount of variance which can be accounted for by teacher and child behavior in the classroom. One of our measures is the test of divergent thinking which previously discriminated programs, and we should be able to determine the extent to which negative feedback for individual children is related to changes in this measure with program controlled.

We have only begun to analyze data, but the following graph (Figure 2) shows both regularities and differences among four of the eight teachers. The percentage of total acts devoted to structuring the task (giving directions or asking children to arrange themselves in certain ways, for example) was remarkably

---

Insert Figure 2 about here

---

similar across teachers. This probably reflects the influence of the particular lessons upon this aspect of teacher behavior. Figure 3 reveals a teacher quite discrepant from the others in that she gave relatively little task feedback per request. The next graph (Figure 4) shows the distribution of selected categories which were directed toward the group. Clearly, group interactions constituted approximately 50% of all interaction, but these were primarily structuring and giving information.

Insert Figures 3 and 4 about here

Demands (asking) were made more often of individuals and most of the feedback went to individuals. This is consistent with program philosophy and represents good implementation.

We shall be interested in the frequency with which each child was involved in these interactions. At this point, we simply asked what the children as a whole were doing during these lessons. Figure 5 shows the percentage of all active child behavior which fell into eight categories. "Self" (largely non-task restless, etc.) and "Facts and Concepts" constituted a little more than a third each of all behavior tallied. The next most frequent category was "Other" at 15% ("Other" collected compliant behavior, related to the task but not substantive). The remaining 8% was distributed among giving of Opinion, Elicitation, Peer interactions, Fantasy and Divergent productions. As shown in Figure 6, the relative distribution of categories was remarkably consistent in the four classes.

Insert Figure 5 and 6 about here

However, there were striking differences among the classes when the percentage of behavior for each class was compared within categories. For example, 55% of all "to teacher" behavior tallied in Class #5 consisted of the children giving Facts and Concepts, and only 18% were Self, Whereas in Class #8 only 24% consisted of Facts and 58% of the behavior tallied in these categories was Self. Differences among classes in the infreguent categories (Opinion, Divergent, Fantasy are obscured by the scale of the last figure. In Figure 7, these categories are

---

Insert Figure 7 about here

---

expressed as a percentage of the total, adjusted for the number of tallies made in each class. Obviously, Class #2 accounted for most of this type of behavior. In fact, of all Opinion tallied, 48% occurred in Class #2. This situation was not due to the mode used by Teacher #2 because percentages of Opinion, for example, were high for children in her class whether she was giving or asking. We know she was teaching the same lessons. It is possible, of course, that these particular children were different to begin with, but if so, some of their pre-test scores should present a different pattern from those in other classes. In fact, on pre-test children in this class were about average on tests of both curiosity (Curiosity Box which includes a measure of fantasy production) and divergent thinking (Dog and Bone).

The two classes represented by an open circle and a circle within a circle (#6 and #8) had very similar patterns, but #2 and #5 differed greatly, with #5 having a disproportionately high amount of Other and #8 a high proportion of Self.

Given the regularities repeatedly found between teacher and child behavior, it is likely that these variations among children in the various classes were produced by different teacher behavior. When we are able to examine the data at the level of individual children, it may be possible to pinpoint the style characteristics of teachers which are related to patterns of child behavior. Whether the behavior of teachers or children is predictive of children's gains on the post-tests can also be determined.

Summary and Conclusions

One very significant fact which has emerged from these studies on disadvantaged children is that didactic small-group instruction, regardless of which mode was used, was associated with restriction of the range of child behaviors. Most of the children's acts were responsive rather than self-initiated and the responses were almost entirely convergent in nature, having to do with Facts and Concepts. The children we have observed in a variety of such settings have not been "making comments, elaborating on their answers, offering opinions or asking questions." (Ebert, 1974). For comparison, it may be noted that the two middle-class prekindergarten classes observed in our longitudinal study (Miller & Dyer, 1975) were distinguished primarily from Head Start classes by a substantial amount of teacher requests for children's opinions in a non-didactic setting. The behavioral results from didactic instruction may serve to reinforce certain tendencies already present in disadvantaged children. For example, it has been shown in a series of experiments on strategies in concept learning by Brennahan and Shapiro (1972) that lower-class children tended to perseverate on reinforced hypotheses rather than adopting the win-stay, lose-shift pattern; that they tended to use a few stereotyped patterns of behavior when allowed to choose between alternatives producing similar amounts of reward; extinguished faster after 100% reinforcement under longer prior reinforcement conditions. All of these results suggest that disadvantaged children are susceptible to overtraining, resulting in rigid patterns which may be efficient in the shortrun but potentially disabling when task parameters change.

It would certainly be premature to indict all small-group instruction for prekindergarten until further product data can be collected. Many essential skills may be most effectively taught to small groups. But our data do suggest that the

"taking turns" (Ask/Individual) mode, in which an attempt is made to teach each child individually in a group format may be a poor compromise between group and tutorial instruction. Children must be trained not to "interrupt"--otherwise instruction deteriorates. Contacts are necessarily brief and the total amount for any one child is quite small per unit of time. Non-targeted children are more frequently off-task. This format constitutes an example of Kounin's "type 4" activity ("recitation with discrete and multiple child signals"). As Kounin has commented, "Listening or monitoring a behavior . . . was associated with low involvement if other children were the emitters" (Kounin, p. 13). Probably most activities which require individual performance in a group format could also be taught without loss of efficiency by a tutorial method, provided materials were available for several children at one time. Teacher interactions with individuals working alone can be more extensive and flexible without producing restless, off-task behavior in other children. Since group instruction usually occupies only a small portion of a day's activities, perhaps the remaining time should be planned to maximize the behaviors which are infrequent in the group situation. On the other hand, the value of group instruction, particularly demonstration and the varieties of cooperative activities possible within this format have not been fully explored. For example, one type of group lesson which we have not observed very often is the game-format. In this type of activity each child's performance has a meaningful relationship to (if not a dependency on) the behavior of other children.

Methodologically, there seems to be no easy path to follow in the systematic study of classroom behavior and its relation to learning. Tutorial instruction and "open" classrooms cannot be adequately evaluated as long as free choice of materials and activities is invariably associated with them. When each

child has spent a different amount of time with various materials and in various activities, there is little information to be gained by looking at group means on any measure of learning. If correlational methods are used, there is no alternative to intensive observation of individual children, although such procedures are extremely expensive.

The molar dimensions of teaching mode represented by combination of the Give/Ask and Group/Individual dimensions exert considerable influence over both teacher behavior and child behavior as do materials and activities, and all of these should be controlled in order to examine the more molecular "style variations" of teachers and to identify the dimensions involved. On the basis of research available on other age levels, it would be reasonable to anticipate some of these dimensions--e.g., cognitive level required in a request for child performance, amount of information conveyed in a request, the medium in which the request is made, and the medium in which performance is carried out. For example, there are enormous differences among the following three events: (a) Teacher asks, "What color chip comes next?"; (b) teacher says, "Now start again and put the red one here"; and (c) teacher merely points to the space where the next color chip goes. All of these are requests for performance in a color seriation task, but they differ in a number of ways. Conversely, giving information verbally, by demonstration, or by modeling differ greatly. To complicate matters still further, visual demonstration which "<u>models</u>" a skill and one which simply "<u>activates</u>" the skill may have opposite effects for children at different stages of learning (Overton, 1973; Salomon, 1973). Finally, one mode of teaching may rapidly change to another since one primary influence on the teacher's behavior is the behavior of children. For example, a pause in the teacher's presentation turns the mode into "Ask" rather than "Give." These variations within modes can probably be most

effectively investigated by classroom experiments.

It must be recognized that instituting adequate controls in studies involving situational variables in the classroom is extremely time-consuming. On the other hand, if teacher behavior, for example, can be sufficiently standardized, it should not be necessary to involve large numbers of teachers--a traditional strategy for the control of unidentified variables. There are bright spots for research in classroom behavior at the early childhood level. A number of influential factors can be controlled--if not in isolation, at least sequentially--and researchers are learning what restrictions the classroom setting places on design. They are also learning which questions can best be answered by laboratory research, classroom experimentation and long-term field studies. In the latter two methods, observations of classroom events are probably essential for adequate interpretation, but even laboratory experiments would benefit from an explication of situational variables.

References

Banta, T. J. (1966) Is there really a Montessori method? Paper presented to the Ohio Psychological and Ohio Psychiatric Associations.

Beller, E. K. (1969) Teaching styles and their effects on problem-solving behavior in Headstart programs. In E. Grotberg (Ed.), Critical issues in research related to disadvantaged children. Princeton, N.J.: Educational Testing Service, Seminar #6, pp. 1-22.

Beller, E. K., Zimmie, J. and Aiken, L. (1971) Levels of play in different nursery settings. Paper presented to the International Congress for Applied Psychology, Liege, Belgium.

Bissell, J. S. (1971) Implementation of planned variation in Head Start. Washington, D. C.: U.S. Department of Health, Education, and Welfare, Office of Child Development.

Bleidt, B. B. (1975) A comparison of two methods of teaching a categorization task. Unpublished Master's Thesis, University of Louisville, in preparation.

Bresnahan, J. L., and Shapiro, M. M. (1972) Learning strategies in children from different socioeconomic levels. In H. W. Reese (Ed.), Advances in child development and behavior. Vol. 7. New York: Academic Press, pp. 31-79.

Ebert, D. R. (1974) Child behavior and traits. Paper presented to the 66th Annual Meeting of the Southern Society for Philosophy and Psychology,

Tampa, Florida.

Fagot, B. I. (1973) Influence of teacher behavior in the preschool. Developmental Psychology, 9(2), 198-206.

Faigin, H. (1958) Social behavior of young children in the Kibbutz. Journal of Abnormal and Social Psychology, 56, 117-129.

Gordon, I., and Jester, R. E. (1973) Techniques of observing teaching in early childhood and outcomes of particular procedures. In R. M. W. Travers (Ed.), Second handbook of research on teaching. Chicago: Rand McNally College Publishing Company, pp. 184-217.

Jersild, A., and Markey, F. (1935) Conflicts between preschool children. Monographs of the Society for Research in Child Development, #21.

Katz, L. G., Peters, D. L. and Stein, N. S. (1968) Observing behavior in kindergarten and preschool classes. Childhood Education, 44, 400-405.

Klein, R. P. (1973) Multivariate comparison of two model preschool programs. Paper presented to the International Society for the Study of Behavioral Development, Ann Arbor, Michigan.

Kounin, J. (1970) Discipline and group management in classrooms. New York: Holt, Rinehard, & Winston.

Kounin, J. S., and Gump, P. V. (1973) Signal systems of lesson settings and the task related behavior of preschool children. Paper presented to the American Psychological Association, Montreal, Canada.

Miller, L. B., Bugbee, M. B., and Dyer, J. L. (1975) Experimental shifting of teaching modes in preschool. Submitted for publication.

Miller, L. B., Bugbee, M. B., White, S. A., and Dyer, J. L. (1974) Producing various teaching techniques in preschool. Classroom Interaction Newsletter, 9(2), 42-54.

Miller, L. B., and Dyer, J. L. (1975) Four preschool programs: Their dimension and effects. Monographs of the Society for Research in Child Development, in press.

Mischel, W. (1973) Toward a cognitive social learning reconceptualization of personality. Psychological Review, 80(4), 252-283.

Overton, W. (1973) Experimental ontogeny: A cognitive view. Paper presented to the Second Biennial Meeting of the International Society for the Study of Behavioral Development, Ann Arbor, Michigan.

Prescott, E., Jones, E., with Kritchevsky, S. (1967) Group day care as a child-rearing environment. Report to Children's Bureau, U.S. Department of Health, Education, and Welfare. Pasadena, California: Pacific Oaks College. ED 024 453.

Reuter, J. and Yunick, G. (1973) Social interaction in nursery schools. Developmental Psychology, 9(3), 319-325.

Rosenbaum, M. E. (1967) The effect of verbalization of correct responses by performers and observers on retention. Child Development, 38, 615-622.

Salomon, G. (1973) Cognitive effects of media: The case of Sesame Street in Israel. Paper presented to the Second Biennial Meeting of the International Society for the Study of Behavioral Development, Ann Arbor, Michigan.

Shure, M. B. (1963) Psychological ecology of a nursery school. Child Development, 34, 979-992.

Siegel, M. A., and Rosenshine, B. (1973) Teacher behavior and student achievement in the Bereiter-Engelmann Follow-Through program. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans.

Soar, R. S., and Soar, R. (1972) An empirical analysis of selected Follow Through programs: An example of a process approach to evaluation. In Early childhood education. The 71st Yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press, pp. 229-259.

Sproull, N. (1973) Visual attention, modeling behavior, and other verbal and nonverbal meta-communication of prekindergarten children viewing Sesame Street. American Educational Research Journal, 10(2), 101-114.

Stanford Research Institute, (1971) Implementation of planned variation in Head Start. Preliminary evaluation of planned variation in Head Start according to Follow Through approaches (1969-1970), DHEW Pub. # (OCD) 72-7.

Wolff, P. and Levin, J. R. (1972) The role of overt activity in children's imagery production. Child Development, 43, 537-548.

00025

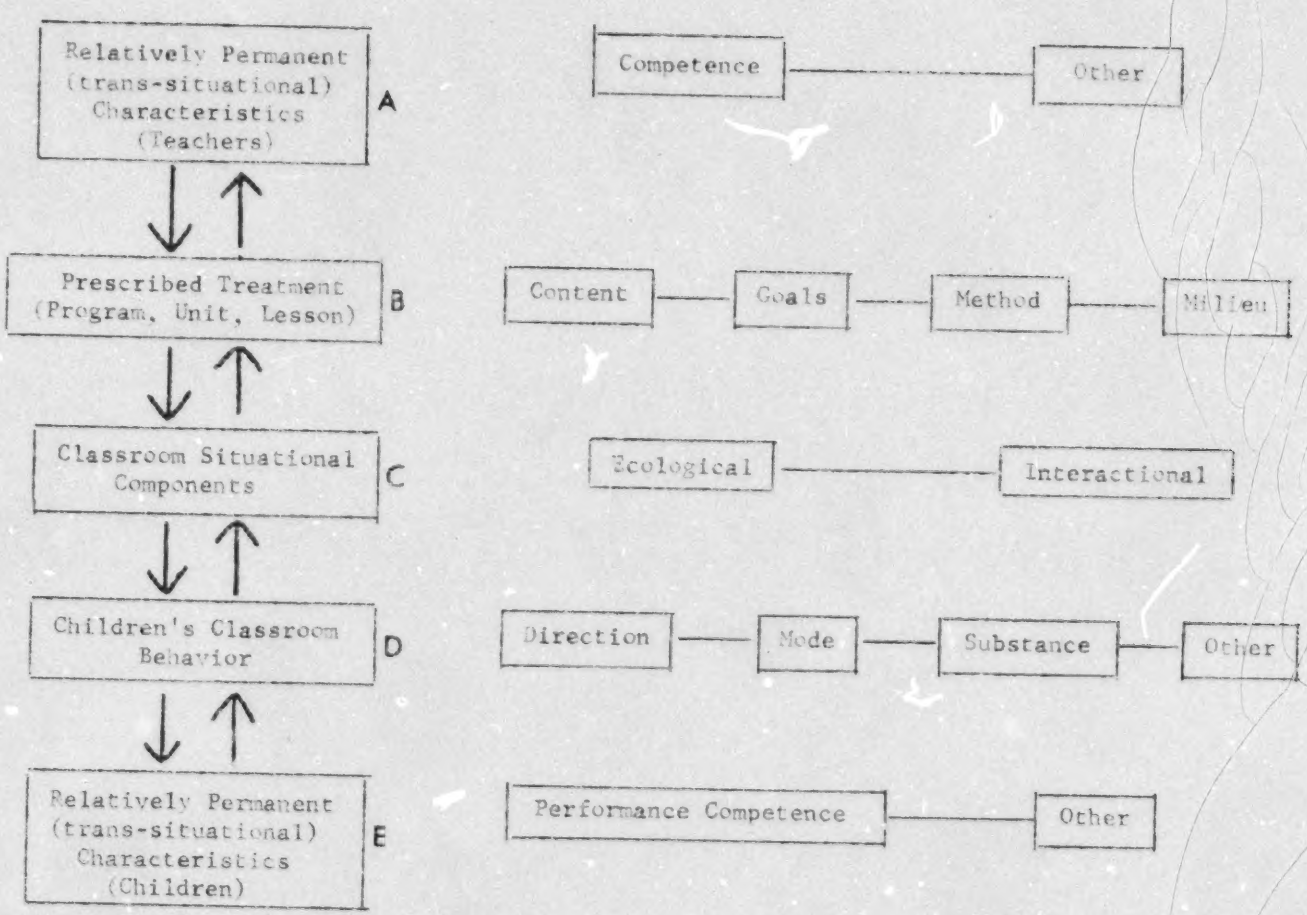

FIGURE 1. Diagram of Major Sources of Variance in Instructional Domain

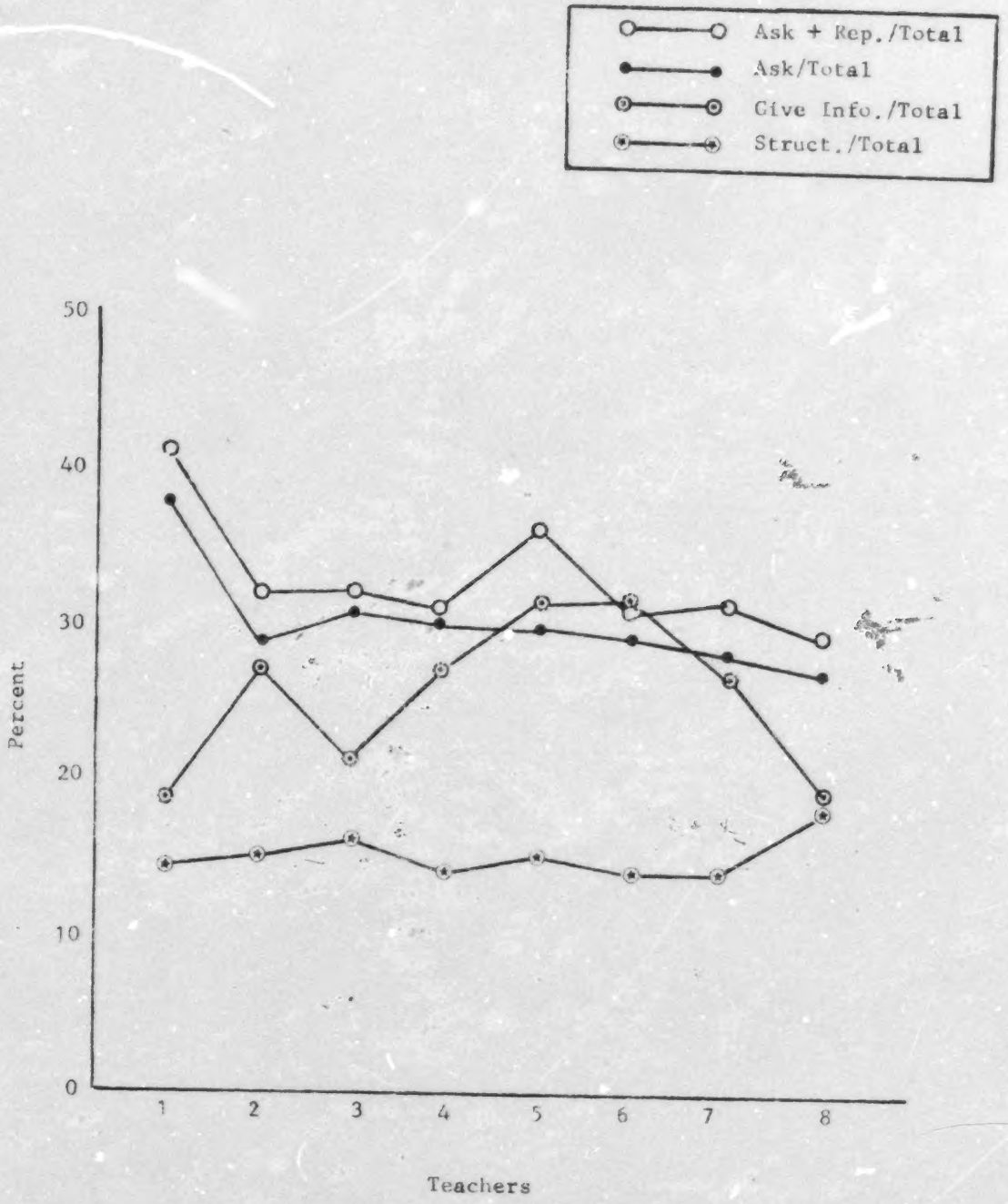
Ask + Rep./Total
Ask/Total
Give Info./Total
Struct./Total
50
40
30
20
10
0
Percent
1
2
3
4
5
6
7
8
Teachers

Fig. 2

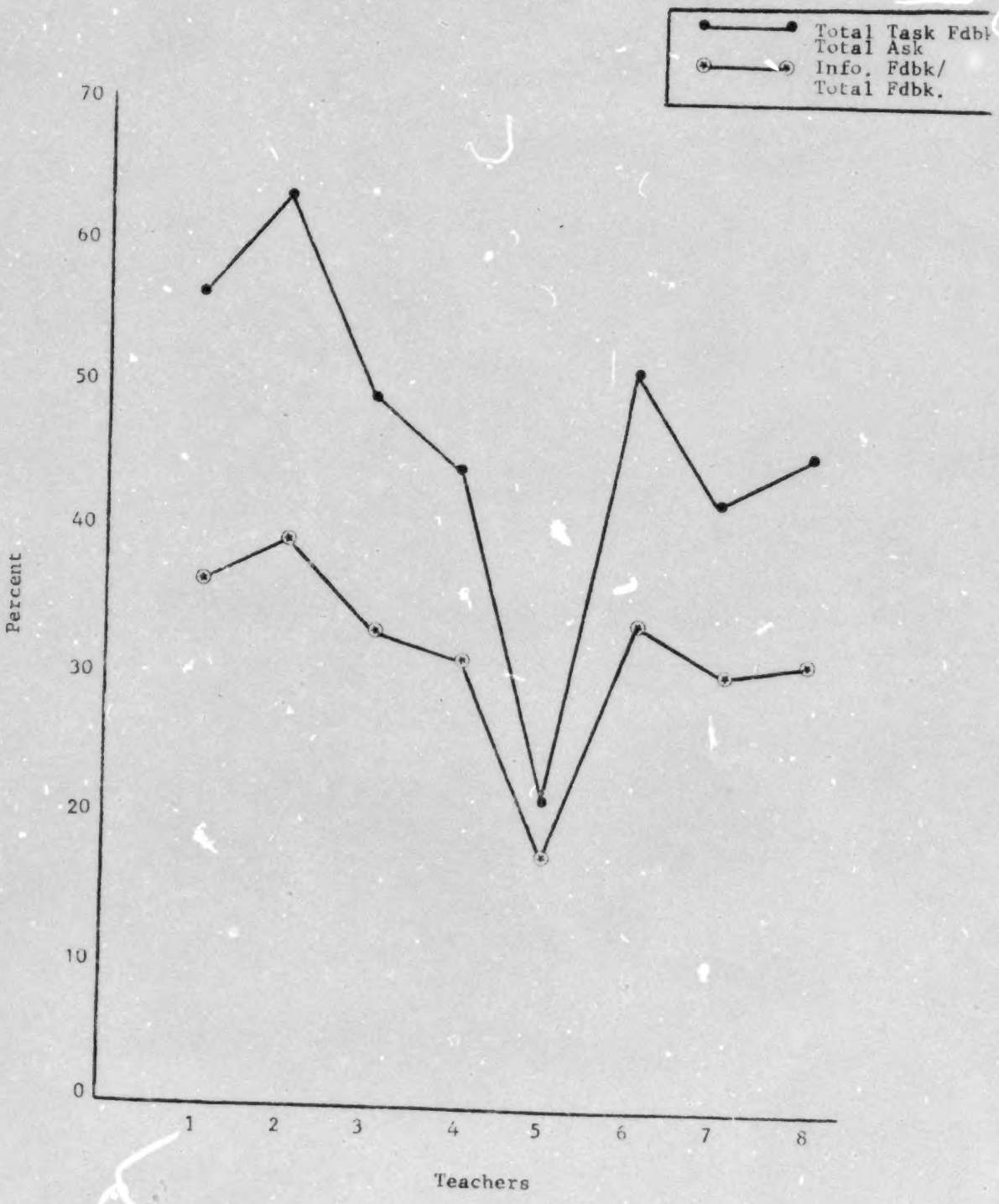
Total Task Fdbk
Total Ask
Info. Fdbk/
Total Fdbk.
70
60
50
40
30
20
10
0
Percent
1
2
3
4
5
6
7
8
Teachers

Fig. 3

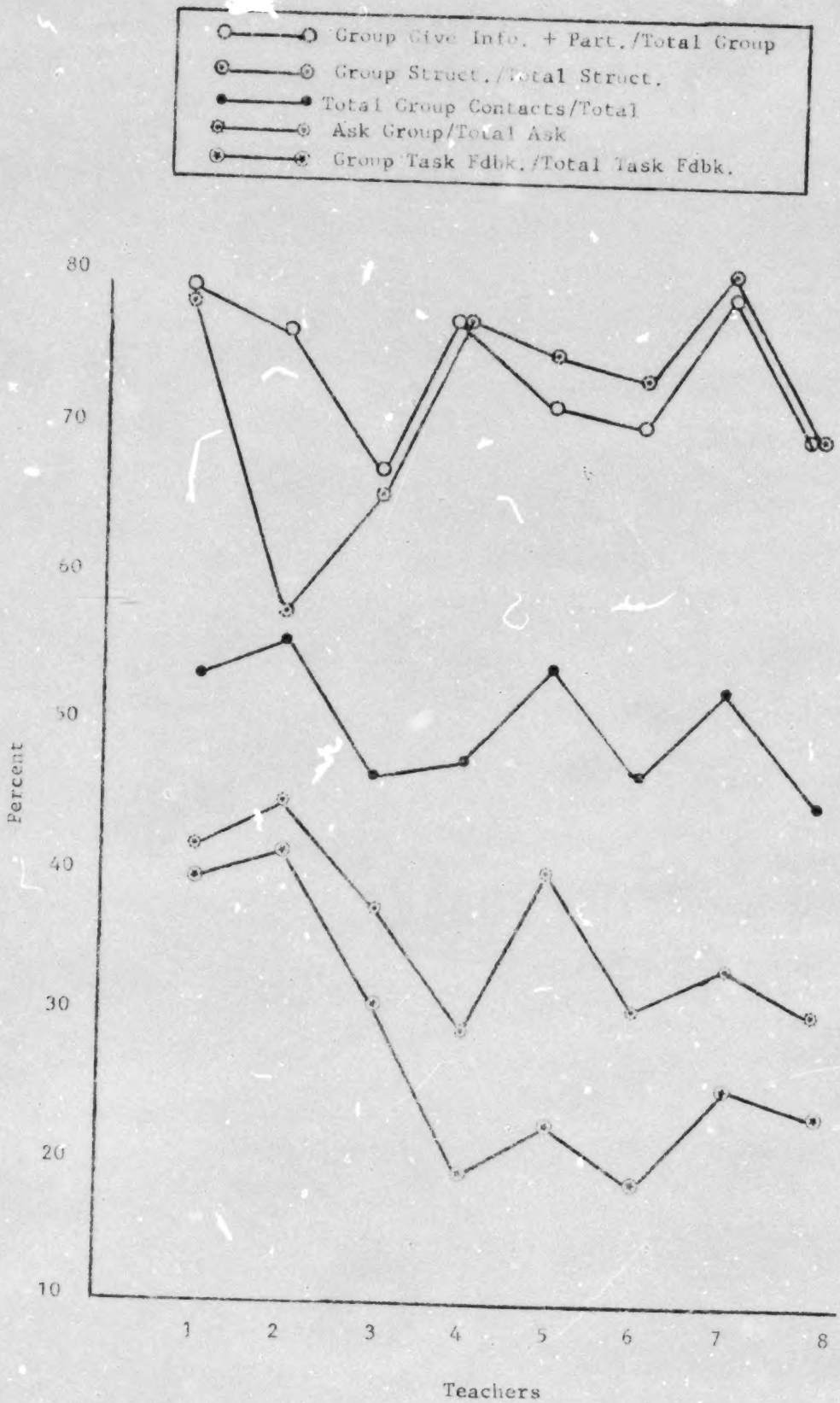
Group Give Info. + Part./Total Group
Group Struct./Total Struct.
Total Group Contacts/Total
Ask Group/Total Ask
Group Task Fdbk./Total Task Fdbk.
80
70
60
50
40
30
20
10
Percent
1
2
3
4
5
6
7
8
Teachers

Fig. 4

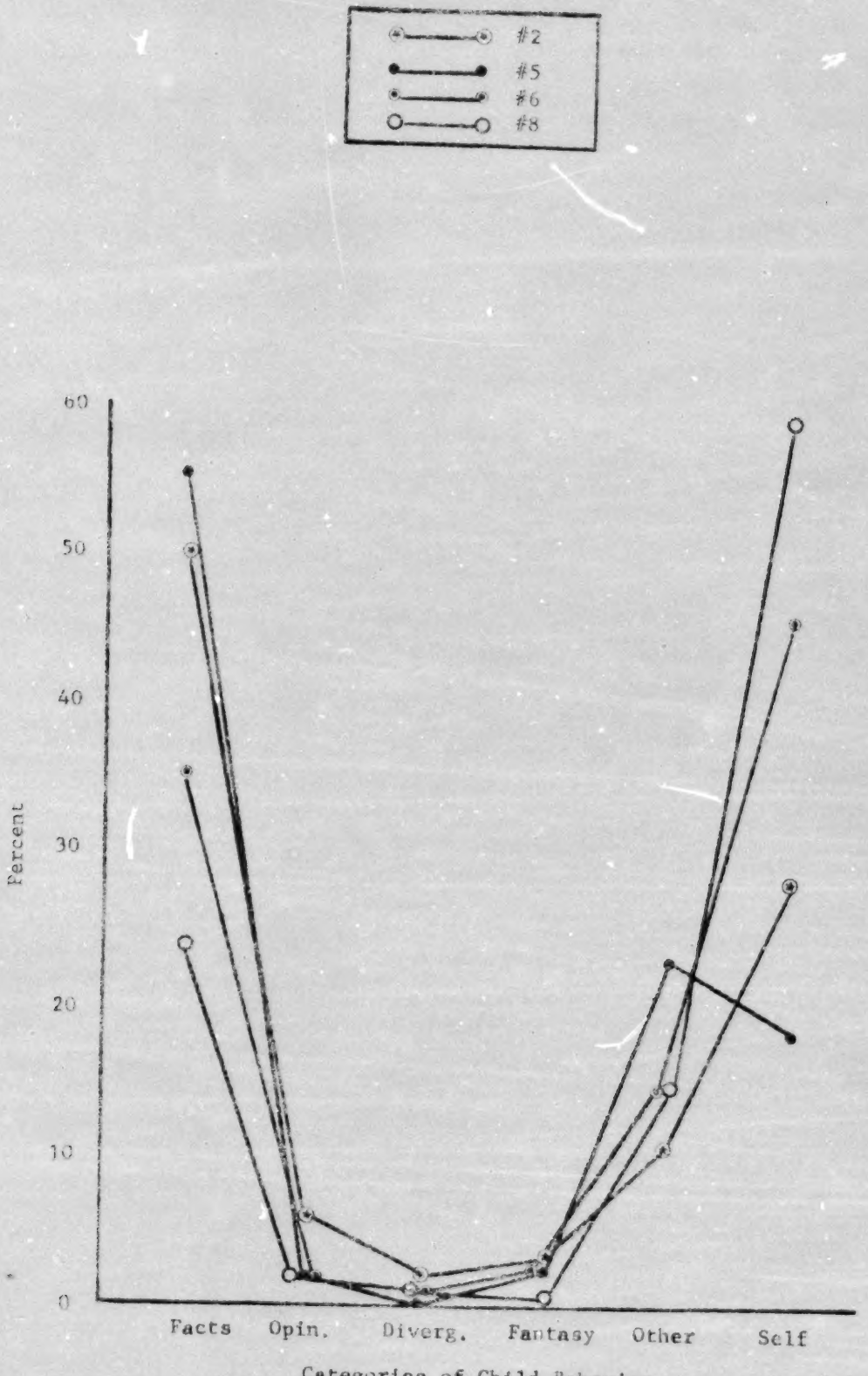
#2
#5
#6
#8
60
50
40
30
20
10
0
Percent
Facts
Opin.
Diverg.
Fantasy
Other
Self
Categories of Child Behavior

Fig. 5

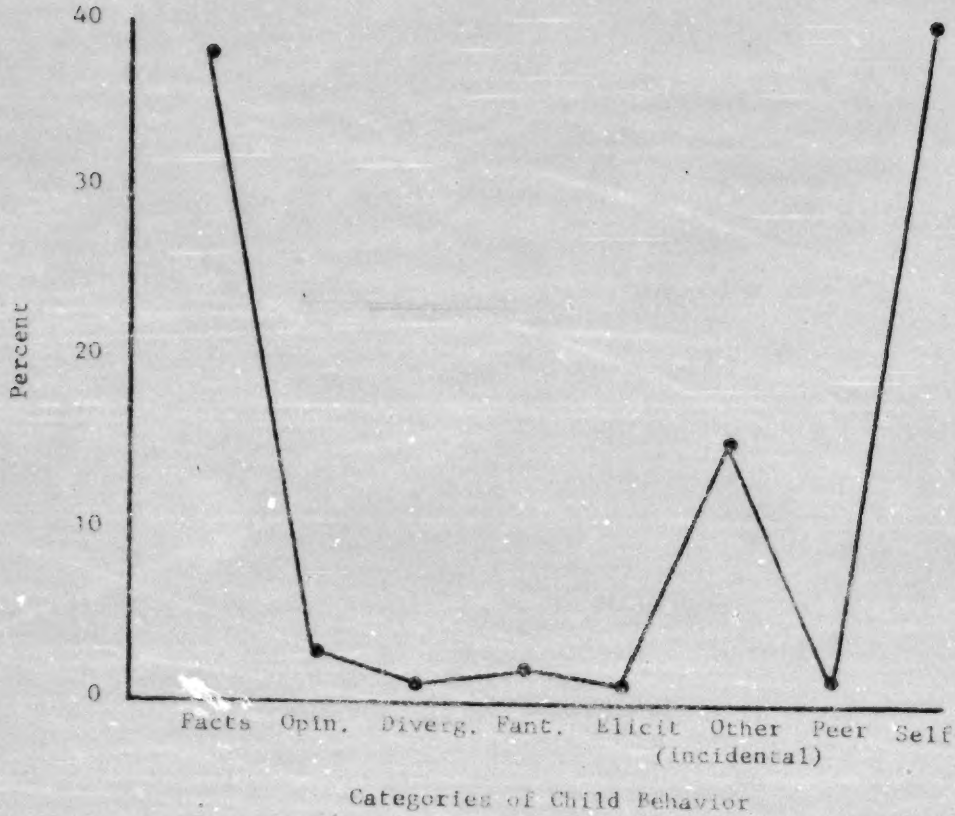
40
30
20
10
0
Percent
Facts
Opin.
Diverg.
Fant.
Elicit
Other
Peer
Self
(incidental)
Categories of Child Behavior

Fig. 6

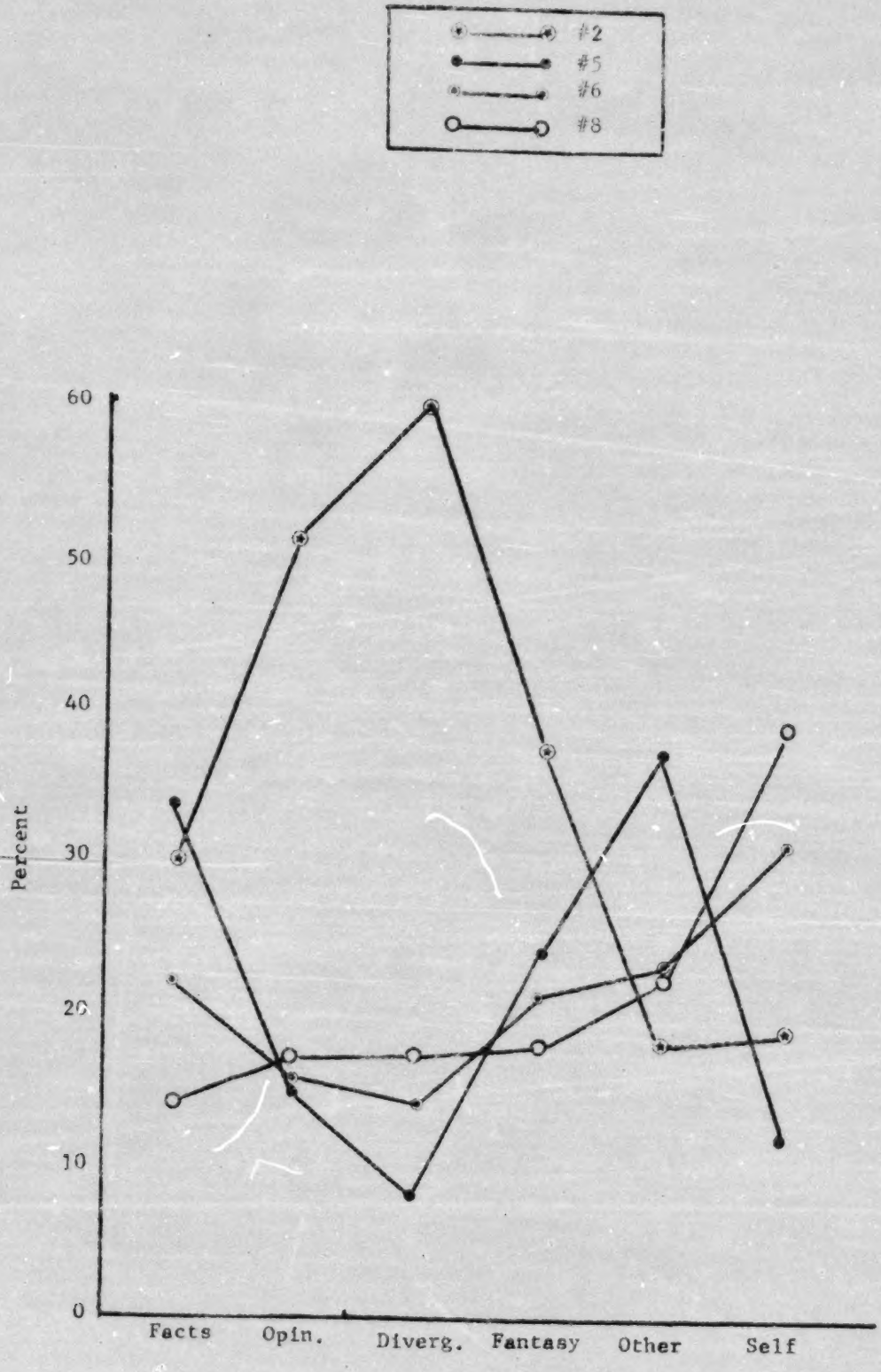
#2
#5
#6
#8
60
50
40
30
20
10
0
Percent
Facts
Opin.
Diverg.
Fantasy
Other
Self
Categories of Child Behavior

Fig. 7

FIGURE LEGENDS

FIGURE 1. Diagram of major sources of variance in instructional domain.

FIGURE 2. Teacher Behavior: Distribution of major categories as a percentage of total tallies. (20-25 observation periods of approximately 20 minutes each.)

FIGURE 3. Teacher Behavior: Feedback as a percentage of Requests for Performance; Informative (elaborated) Feedback as a percentage of total Feedback. (20-25 observation periods of approximately 20 minutes each.)

FIGURE 4. Teacher Behavior: Group Interactions as a percentage of total in each category. (20-25 observation periods of approximately 20 minutes each.)

FIGURE 5. Child Behavior: Distribution of total for 4 classes within categories as a percentage of all tallies. (One-minute time samples over 10-week period; approximately 15 minutes on each child.)

FIGURE 6. Child Behavior: Distribution by classes within categories as a percentage of all tallies in that class. (One-minute time samples over 10-week period; approximately 15 minutes on each child.)

FIGURE 7. Child Behavior: Percentage of total in each category which was tallied in each teacher's class adjusted for total number of tallies in that class. (One-minute time samples over 10-week period; approximately 15 minutes on each child.)